THE
VETERINARY RECORD.

The Official Journal of the National Veterinary Medical Association of Great Britain and Ireland, Limited.

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 1. JANUARY 6, 1923. VOL. 3.

The Operative Treatment of certain Pathological Conditions of the Foot.*

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In venturing to bring to your notice, in the form of this short paper, some methods of dealing with conditions which are met with from time to time in the course of our routine practice, I do not pretend to be propounding any startling new operations, but merely to illustrate treatments which I have been able to apply with no great difficulty, and with, I think I may say, a fair percentage of success.

Many of you will, no doubt, be familiar with all these methods, all of you with some of them, and it is in the hope of increasing our knowledge of these subjects by getting your views in discussion that I am giving these notes to-day.

BRIDGE OPERATION FOR QUITTOR.

My first note concerns a method of dealing with quittor in the horse.

This note, I may say, was compiled in a rather more elaborate form whilst serving in France, and at the request of the Veterinary Service. It was published in pamphlet form, and if you read it, I herewith tender my apologies for any repetition. I will leave out all academic discourse on causation, etc., and simply describe the treatment.

The animal has the shoe of the affected foot removed, and the heel of the hoof well lowered. The whole foot is then washed and the animal cast and chloroformed. The affected foot is then removed from the hobble, and fixed to the other limb of the same side, fore or hind. Any other suitable method of fixing the limb may be used, but this gives good rigidity. The whole fetlock and foot are clipped, and, with the sole, cleaned and disinfected. A tourniquet is applied above the fetlock.

Two incisions are made in the skin above the coronet, the first along the anterior margin of the lateral cartilage about 1½ inches long, and removing an elliptical piece of skin, leaving a wound about 1½in. by ¾in.

The second similar incision is made along the posterior margin of the cartilage, and into the hollow of the heel.

From the posterior incision dissection of the cartilage is carried on, working from the outside of the cartilage downwards and forwards to the anterior incision, where it is carried further forward to the anterior edge.

* Presented to the Derbyshire Veterinary Association.

When the outside of the cartilage is dissected free, the knife is carried upwards from the outside, and down the inner border, working from the posterior incision. Keeping the point and edge of the knife well towards the cartilage, to avoid injury to the deeper structures, the dissection is carried on as on the outside till the cartilage is free, except at its attachment at the *os pedis*. This is severed and the cartilage removed. The cavity is scrutinised, and any loose tissue or remaining cartilage removed. The wound is well dressed with B.I.P.P. or iodoform and boracic, inside and out, and then entirely covered with gauze (to keep any dressing such as tow, etc., from getting into the cavity and preventing healing), and again with a liberal packing with tow. The whole is held in position by two or more bandages tightly applied, and carried well up the pastern, and down on to the hoof.

The horse is then allowed to rise. There will be some hæmorrhage, which need occasion no anxiety. The dressings are not touched for twenty days, when they are removed and the foot washed. The wounds will be found to be vastly reduced in size and the cavity in the foot filled up. The whole needs only to be treated as a surface wound. The amount of dressing needed after the bandages are removed is very little. Shoe with a three-quarter bar shoe, with the deficient part under the quarter operated upon, and the horse should be at work in a month or five weeks.

My second note is on the same condition, but is different for various reasons.

The former operation was found to be unsatisfactory for small-footed ponies and mules, owing to the narrowness of the heels and the tendency to go on the toe with the heel up after the operation.

The animal is cast and chloroformed as before. A triangular flap of skin is dissected free over the affected cartilage, the attached base of the triangle being towards the pastern, while the free apex is carried down to the coronary band. The actual incisions go through the band, and a portion of the wall, about ½ to ¾ of an inch down, is removed The skin is deflected back, and the cartilage is dissected out more or less as in the operation previously described, but, of course, there is no wound in the heel in this case. After treatment is as in the former case.

This method of not making a wound in the heel had the desired effect, particularly in mules. :The animals put the foot down flat, and there was no subsequent lameness or distortion of the hoof. The

greater strength of growth of the horny wall showed itself in the complete closing of the incision in the wall with new horn, secreted, I think, from the laminæ, and not grown from the coronary band.

I tried this operation on horses with but scant success, fissure of the wall remaining in too many cases.

A Method of Dealing with Pyramidal Disease in the Horse.

This condition is not uncommon in heavy horses, causes considerable trouble and loss of work, and is, doubtless, well known to all of you. The treatment consists of cutting two grooves, one on either side of the diseased portion of the hoof from the coronet down to the foot surface, about ¼ of an inch wide, and carried down to the sensitive laminæ, but only just to that depth.

The operation can be done with the animal standing —preferably with a local anæsthetic, the horse's hoof being held on a shoeing-smith's stand or similar pedestal, after removal of the shoe.

The grooves may be made with a hoof plane or with a curved broad-edged saw, beginning at the coronet and working down to the foot surface, gradually deepening the whole groove till the sensitive layer is reached.

Care must be taken to get well down at the top, just under the coronary band. When both grooves are finished, that portion of the wall included between the grooves at their lower end is cut away, removing about half an inch of wall down to the white line. The horse may then be shod, using side clips outside the grooves instead of toe clips, and no toe nails. The coronet should then be blistered to promote healthy growth, the unsound horn growing down fairly freely according to its freedom from attachments.

Modification of Smith's Operation.

My fourth note, which I bring forward with some trepidation, is relative to the application of Smith's operation, or a modification of it, for the relief of lameness caused by sidebones.

During the war I was fortunate enough to have considerable opportunity of studying this treatment and effects.

The treatment, as you are very well aware, consists of cutting grooves in the wall of the affected hoof, the idea being to allow extra expansion for the foot, which it had lost owing to the ossification of the lateral cartilages.

The method I applied was practically Smith's Operation, but I made no section of the coronary band, and the grooves I made were, therefore, only temporary.

Three grooves were cut with the hoof plane or saw, starting just below the coronary band, and being carried to the ground surface.

The first groove commenced about the anterior edge of the ossified cartilage, and ran to the sole in the direction of the horn fibres. The second groove was similar, but began about one inch from the heel.

The third began at the coronet, midway between the first and second grooves, and ran down to the foot surface at right angles to that surface, and, therefore, more or less across the horn fibres.

These grooves were all cut down to the sensitive surface, and averaging about one-eighth of an inch wide, varying with the size of the hoof. The wall at the foot surface included between these grooves was removed for about half an inch in height, and to the depth of the "white line."

The horse was shod with a round or bar shoe, turned out for about a week, and then put to work. Should the side bone be bi-lateral, the operation is bi-lateral.

Many of these horses were seen after a considerable time had elapsed, and the grooves were entirely or partially grown out, but the animals continued sound, in my opinion due to a permanent enlargement of the hoof.

Discussion.

Mr. Briggs: In this case of grooving you do not cut the coronary band?

Major Bagshawe: No.

Mr. Aulton having remarked that it was an education to hear something arising from Major Bagshawe's long experience in France,

Mr. Heather said there was no doubt that study of diseases of the foot was an important branch of their profession, and a new branch of surgery was promised for many members of the profession. Side bones, quittors and such were a prolonged source of trouble, and if right measures were not taken, cases were under treatment for many months. The paper and illustrations that day made a long job into a short one, and brought to the front the point that surgery was better than quackery.

Mr. Duckworth stated that he had not seen that operation performed since he was an assistant in Manchester. His chief then operated on a horse. He took a part out of the hoof, leaving the coronary band, separated underneath it and then took out the cartilage. The operation was done very well, but there was always a bulging and a deformed hoof afterwards. The usual practice in the treatment of quittor was the employment of the hot iron and plugging with arsenic tubes, corrosive, and that sort of thing, but in that case they got deformed coronet and hoof.

Mr. Briggs pointed out that one point of considerable importance was that the surgeon did not continually have to attend the horse after the operation. An owner looked at the expense of the operation, and he would be impressed with the fact that the surgeon would have very little in the way of charges for attendances.

Mr. Duckworth also emphasised the advantage of having a horse working within 21 days of the operation. He would like to ask Major Bagshawe in regard to the operation whether, after he had disconnected each side, getting at the bottom was difficult.

Major BAGSHAWE replied that in the ordinary case it was not difficult. In the specimen before them there was difficulty, but that was owing to the presence of side bone. Complications were likely to arise with side bone, and the operation was not as likely to be a success.

Mr. DUCKWORTH asked the object of making two "windows" instead of cutting from the side.

Major BAGSHAWE replied that they would in that way get an enormous coronet, and a thick lip, as thick as two fingers, would hang down. It would have no tendency to heal, nor would the horn be disposed to grow. A good wide bridge was required to be left between the two "windows."

Mr. MARRISON made reference to a case of quittor he dealt with a couple of months ago. He injected a solution of perchloride. He had three holes communicable, and saw that when he made an injection through one, the fluid passed out through the other two. After that he gave a good dressing on top, and left it a week. There was considerable improvement, so he left it another week. He then took it to the blacksmith's shop for convenience and decided to repeat the treatment. In ten days afterwards it had healed, and some time afterwards it was impossible to find where the quittor had been. That was an outside cartilage on the hind foot. He got the case very early, as the horse had only been lame about ten days. With regard to the other operation Major Bagshawe had described, he brought from Crewe, six months ago, a horse that was going slightly lame. It developed a side bone, so he performed that operation on both sides, blistered the horse and turned it out. He understood the horse was now going perfectly sound.

Mr. LEVIE expressed the opinion that it was very kind of Mr. Bagshawe to bring forward so interesting a subject, for it appeared generally to be the practice to rake up some old subject for the sake of starting a discussion, and at the end they were no nearer than when they started. All of them at times came across cases similar to those Mr. Bagshawe had dealt with. Personally, when he was in practice, on most occasions he was at his wits' end to know what to do to make it a paying proposition and at the same time give satisfaction to his client and himself. In other words, in treating a case he had generally had to leave the animal marked for the rest of its life. He now learned that there was no need for marks to be left, and that the operation could be performed so successfully that the animal could be left by the operator practically as good as before the disease arose. If that were so, he saw a forward march in surgery. The greater the success a practitioner had in such cases the greater would his reputation become, and the wider would his practice spread. Major Bagshawe had given them information he could have kept to himself, and thus have worked as a specialist, charging large fees to members of that Association for performing the operation. They wanted more men to give lectures of that kind, and spread the spirit of unity in the profession. That little Association had done more than anything in the past to break down that barrier of suspicion, envy and jealousy that had stood in the way of progress (hear, hear). He hoped that at some future date Major Bagshawe would oblige them by performing the operation at a meeting of the Association.

Mr. KING said he had no doubt that that was an operation that should be performed. He took it that they must not expect to be entirely successful at the first attempt, as proficiency could not be attained straight away. He would like to know the procedure where the quittor was of long standing, the coronet badly affected, and a large amount of fibrous tissue present. When using the left-handed quittor knife, was the concavity of the knife directed to the cartilage or away from it? With regard to the operation for pyramidal disease, he took it there was actual disease of the process of the *os pedis*. He also wished to know the exact position of the coronary band on the specimen, and the lower limit. How far down below the top of the horny hoof did it extend? How were the diseased parts distinguished from the healthy tissue? Was not the case Mr. Marrison quoted one of false quittor?

Mr. PRINCE remarked that if they removed that piece of skin left as a bridge, it would be much easier for the ordinary practitioner to operate, as he got a case only occasionally. He thought if they cut that bridge through, they would be able to see much better what they were doing. If they got sufficient pressure, he believed that would keep away the bulging afterwards. His opinion was that, at any rate at the first attempt, he would have to cut the skin and risk the bulging.

Mr. BRIGGS asked if there were much difficulty in avoiding the arteries during the operation.

THE REPLY.

Major BAGSHAWE said he heartily agreed with Mr. Heather, who said there was a great difference between surgery and quackery. They must show something different from the quacks, whose claims, when investigated, did not work. If they dealt with a thing in a radical manner, they did more good than all the dissertations on microbes. Dealing with questions, he said that interference with the hoof or coronary band led to deformity. They did cure cases with caustics, but such treatment necessitated long-standing dressings, and he preferred to be without them. Fewer cases of quittors were met with in these days, due, no doubt, to the substitution of the motor for the horse. He had had four cases in the last six months. He could not say that slippery roads had anything to do with the cause of the trouble. It was surprising in how few cases they found outside interference. Mr. Marrison spoke about the injection of perchloride. They could treat that very successfully with injection. He had dealt with many cases in that way and results had been very good. If they did not care about the operation, that method worked very well. In the services they used hot poultices, though he was not fond of such poultices. He stuck to his statement that after operation there was little or no

marking left—two small scars which, under the hair, were negligible. If any member cared to take on one of those operations, he would be glad to give any help. In reply to a further question he said the only difference between the operation they had been considering that afternoon and the French was the "bridge." In the French operation, they got a large wound, and, what he did not like, a deformity of the hoof. The coronary band became tremendously swollen or bulged out, and there was no tendency to heal. They got a scaly yellow appearance on the coronary band, and the operation did not succeed with him or with Major Reynolds, who was on the same job. In the French operation bandages were put on, but they were not kept on for long. He thought in the French operation the trouble came from inside, not outside, through lack of nourishment or drainage. He thought the chances of success in a first operation were very great, provided the operator took the trouble thoroughly to clean the wound after he had operated and took out all the cartilage. The cartilage was generally bright green or brown, and they could see into any foot particularly easily by dilating one hole, and using a little electric lamp about the size of a pin. They could scrutinise every corner, and success depended on removing all dead and loose tissue. They could take their time over the operation, but it was not so difficult as it sounded. If they removed all the dead matter there was no danger of sinus in the bridge. He had been asked how the knife was used. He would hold it with the concave portion towards the cartilage. The operation could be performed with a straight knife, but it was much more easily done with a French curved knife. He would define the limit of the coronary band for surgical purposes as the place where the hoof ceased to be flexible. It did not much matter about interfering with the coronary band from below, but if they interfered with it from the top, they got permanent damage. If they touched it at the bottom, it would grow out. He took out every bit of the cartilage he could, not only the diseased portion. No doubt Mr. Marrison's case was a true case of quittor.

In cutting the hoof for the second operation he had spoken about he first made a groove with a hot iron. It softened the hoof and made sawing easier. In an animal under chloroform there was a considerable amount of movement, particularly if a nerve were touched, and that was why it was necessary to be so particular in tying an animal up. Necrotic sinus in the breach did not require much treatment when they had taken away the cause of the trouble. He did not take the slightest trouble in avoiding arteries, as there was no danger from excessive hæmorrhage in operations of that kind. In the second operation when cutting the hoof they stopped immediately they got a little hæmorrhage. They must be careful in cutting above before they cut below, and, roughly, they cut until they saw a little pink.

A sheep dog has shown its devotion to its Cumberland master by travelling 50 miles on a dark night from the new home to the old one.

The Life-History of the Wire-Worm of Sheep.

Introduction.—The wireworm of ruminants, scientifically known as *Haemonchus contortus*, is a small thin worm which passes part of its life in the "fourth stomach" of sheep, cattle, goats, and other ruminants, including wild game such as buck. Its distinguishing scientific name *contortus* is given to it on account of the contorted or spiral appearance of the internal organs of the female. In the adult form the white ovaries of the female are rolled round the reddish intestine to form regular loops, and this gives it a spiral striping like a barber's pole. It lives by sucking blood from the mucous membrane and from this blood its intestines derive their colour.

Post-mortem examination of an infected sheep shows the presence of the adult worms, rather over an inch in length and about as thick as an ordinary sewing needle. They are found either wriggling about in the stomach (abomasum) or in clusters round the stomach walls.

The general symptoms of acute wire-worm infection are inflammation of the stomach and anæmia. This shows itself externally as a paleness of the mucous membranes of the mouth and eyes, loss of flesh and general weakness. accompanied by thirst and diarrhœa, and sometimes by a dropsical effusion (or watery swelling) under the jaw.

Lambs and young sheep are most seriously affected, but although fully-grown sheep also suffer, they can sometimes harbour the worms for a long time without showing serious symptoms, provided the veld is in good condition and they obtain abundance of good food. Such *apparently healthy* adult sheep are a serious source of danger, since they keep the infection alive and, in their droppings, scatter eggs to infect the veld, and hence infect the rest of the flock.

There are six stages in the life-history of the worm—the egg, four "larval" or immature stages, and the adult. Half of these stages is passed in the stomach of the sheep and the other half outside on the veld. The complete life-cycle may be indicated as follows :—

Adults.—Fully-grown males and females only live in the fourth stomach of sheep or other ruminants. Here they may thrive all the year round, although the degree of infestation depends upon the season. Once a sheep is infected with wire-worms it may remain infected for a very long time unless measures are taken to eradicate the parasite.

The female is somewhat larger than the male, and is readily distinguished by the enlargement over the hind third of its length, corresponding to the egg-laying organs. When full size has been reached, the average length is about one inch and the average breadth about one-fiftieth part of an inch. The females are then fertilised by the males and egg-laying begins.

Eggs.—The eggs then leave the stomach along with the food, pass through the intestines, and out with the droppings. The eggs are oval in shape and very small ; only about one four-hundredth part of an inch in length. The number which can be

passed out by a badly-infected sheep is enormous, and even an infected sheep which is still *outwardly healthy* in appearance may pass as many as three million per day. The eggs then out hatch in the droppings on the veld, provided conditions of temperature and moisture are suitable. The warm wet weather of summer is most favourable, and hence spread of wire-worm infection is worst at this season. Hatching is very rapid and may begin at once, since development of the eggs occurs even in passing through the intestines. Under favourable conditions, eggs may hatch 19 hours after being laid.

First Larval Stage.—When hatching occurs, a small thread-like "larva" (immature development stage), about one eightieth part of an inch in length, crawls out. This larva feeds on the manure in which it hatched, grows a little, forms a new skin, then moults or casts the old skin, and emerges as the second larval stage. The first larval stage is passed through in about one day.

Second Larval Stage.—At this stage, the worm is about one-fiftieth of an inch in length, is very lively and continues to feed on the droppings of the sheep. It then grows another skin, partially detaches the old skin while developing towards the third larval stage, and in this "ensheathed form" is called the "mature larva." The whole process takes less than two days, and the mature larval stage may therefore be reached about three days after hatching, provided conditions of warmth and moisture are favourable. It is in this stage that the worm is *infective*. Neither the egg nor the first larva can infect an animal, but at the mature larval stage the tiny worm proceeds to find a "host," *i.e.*, a sheep or other ruminant, in which to complete its development. At this stage it is about one-thirtieth of an inch in length, can live for a long time, and is migratory in habit. It leaves the medium (dung of the sheep) in which it developed, and travels up the damp blades of grass. In eating the grass the sheep takes the matured larvæ into the stomach, and in this way becomes infected.

Third Larval Stage.—The worm now commences the parasitic part of its life (first parasitic stage), casts its detached skin (remaining from the second stage), continues its evolution, forms a third skin, moults again, and emerges as the fourth larval stage.

Fourth Larval Stage.—At this "fourth larval" or "second parasitic" stage, the worm commences to bore into the surface of the stomach, causing a slight effusion of blood. Within the blood clot so formed, the larval worm is found. Growth continues, and a length of about one-fifth of an inch is reached in rather over a week, while at the same time differentiation of the sexes occurs. Male and female worms can then be distinguished. A fourth skin forms, is duly cast, and the young adult worm appears; the whole process being completed about a fortnight from the time the mature infective larvæ entered the stomach.

Adult Stage.—This third parasitic or last stage of growth is completed in about another fortnight, during which time the worms grow from about a quarter of an inch in length to full size of one inch, and become sexually mature. Fertilisation then takes place, and the female begins to lay eggs, so completing the life-cycle of the worm.

Summary.—There are thus three non-parasitic stages, *i.e.*, the egg, the first larva, and the second larva, passed outside on the veld; and three parasitic stages, *i.e.*, the third larva, fourth larva, and adult (male and female), passed in the stomach of the sheep. The time from entrance of the mature larva into the stomach until the first laying of eggs, is about one month, and consideration of this period is, therefore, of the utmost importance in any system of dosing. If wire-worm infection is to be eradicated with certainty, dosing must be repeated at least once a month in order to prevent females from developing to the stage at which they can lay eggs and so perpetuate the infection. If they do manage to lay eggs, these hatch out on the veld, develop, promptly re-infect the sheep, and restore the vicious cycle.

Influence of Season.—Since moisture and warmth are necessary for development of the eggs and early larval stages, veld infection is greatest during the warm wet periods of the year. The infective larval stage may be reached in three days in warm weather, but only in three weeks in cold weather; and not be reached at all in frosty weather. A reduced infection of the veld may, however, prevail all the year round, especially in vleis, since the mature larva in its "sheathed form," and with its capacity for "migrating" or wandering along moist surfaces, will live for a long time. Exposure to direct sunlight and drought will kill it, but under such adverse conditions, it returns to the soil to hide, only coming out again to crawl up the grass in dull, damp weather. If, of course, the worms never find a "host," *i.e.*, sheep or other ruminant, they finally die a natural death. The two practical points to remember are:—

(1) That an infected pasture may remain infected for at least a year, and that all sheep grazing on it during this time are liable to become infected.
(2) That a living sheep spreads the infection so long as adult wire-worms are present in the stomach.

Eradication of the Worms.—In order to suppress the wire-worm plague, it is therefore necessary to kill the wire-worms in the stomach of the sheep and to clear the farm of mature larvæ. The first task can be accomplished by using the Wire Worm Remedy* supplied by the Division of Veterinary Education and Research. The second is more difficult and takes longer to accomplish. One method would of course be to keep away all animals which act as hosts (sheep, goats, cattle, buck), for at least a year, and so leave the larvæ to die a natural death; but this method is not feasible in ordinary farming. The other method is to allow the sheep to pick up the larvæ in grazing, but to kill them off in the stomach before they reach the egg-laying stage. Since the

* (This remedy consists of a combination of arsenic and desiccated copper sulphate.—Ed. V. R.)

parasitic worm takes from three weeks to a month to reach sexual maturity, the treatment involves regular dosing at least once a month, especially during the rainy season. If this is done, no eggs are laid, no fresh infection of the veld occurs, and the larvæ which are not picked up by the sheep die in time. The farm is then clean and, provided no further infection is brought in from other areas, dosing is no longer necessary. Although the possibility exists that the infection may be kept alive by ruminants other than sheep (cattle, buck), experience has shown that these animals are only rarely infected, and hence systematic dosing of sheep and goats is generally sufficient to eradicate the infection. In the rare cases in which infected buck, with which dosing is impossible, do keep the infection alive, periodic dosing of the sheep and goats may have to be continued indefinitely. It must be remembered that the Wire-Worm Remedy is a cure and not a preventive. It kills the worms in the stomach, but of course passes out of the stomach with the food, and hence cannot prevent re-infection. There is, therefore, no practical way of preventing reproduction of the worms except by killing them off regularly once a month until the source of infection on the veld itself disappears.

It may be added that the directions for use of the Government Remedy are arranged to eradicate worms as completely and quickly as possible, without danger of poisoning the sheep. They are therefore more drastic than most remedies upon the market, especially in regard to preliminary starvation treatment. Even if used under the less drastic conditions advertised for other remedies, however, the Government Remedy is as effective as any of them.

Analogy with Tick Eradication.—The principle underlying these recommendations will perhaps be clearer if it is compared with the principle of eradication of ticks. Ticks cannot be prevented from attaching themselves to the stock, and cannot be killed out in the grass by any feasible method. The stock therefore collect the ticks, but if the stock are regularly dipped the collected ticks are either destroyed, or do not lay fertile eggs, and hence do not perpetuate the infestation. The ticks which do not attach themselves to stock die a natural death in course of time, and hence after a year or two of regular dipping, the farm becomes clean. In the same way, the sheep collect the wire-worm larvæ, and the dosing destroys them. In the case of ticks, short intervals between dippings, three to fourteen days according to the kind of tick, are necessary because the ticks breed very quickly after attaching. In the case of wire-worms an interval of three to four weeks between dosings is sufficient to prevent breeding. If the dosing is systematically carried out, the wire-worms will be rapidly reduced to negligible numbers, just as ticks are reduced by dipping.

Diagnosis by Means of Culture.—A practical and easy method of finding out the extent to which sheep are infected with wire-worms, even before they show the ill-effects of the infection, is to cultivate the eggs from the droppings and observe the migrating larvæ. Every farmer can do this for himself by simply collecting fresh moist droppings from the suspected sheep, placing them in a glass jam-jar, placing the jar in a comfortably warm cupboard, and watching events from day to day. Provided the droppings have been sufficiently moist, a fine dew deposits on the sides of the glass, and from the fourth day onwards the larvæ, which have developed from the eggs passed out by the sheep in the droppings, begin to migrate and form slimy white tracts ramifying over the surface of the glass. If the glass is now exposed to strong light the larvæ will be observed to return to the droppings, and enter them again provided they are still sufficiently wet. It should be added that "sour fæces" are unsuitable for culture, but that in most cases the experiment is successful, instructive, and useful.—(*Journal of Dept. of Agriculture* for South Africa).

The First Woman Veterinary Surgeon.

Among the candidates admitted to membership of the Royal College of Veterinary Surgeons, after examination on December 20th, is Miss Aleen Cust; she is the first woman to obtain the diploma. Miss Cust passed through the full curriculum of four years at the Edinburgh Veterinary College some time ago. The Royal College of Veterinary Surgeons at that time held that its Charters did not permit it to grant the diploma to women. The Sex Disqualification Removal Act has, however, settled the question of the admission of women to the professions, and, as Miss Cust served for four years with H.M. Forces during the recent war, the Council recognised her claim to be admitted to the Final Examination. Miss Cust is the daughter of the late Sir Leopold Cust, Bt., and sister of Sir Charles Cust, Equerry to the King. She established an extensive veterinary practice in the West of Ireland, and was Veterinary Inspector to the Galway County Council and the Department of Agriculture in Ireland for many years.

In presenting the diploma to the successful final year candidates, the President said that the occasion marked an epoch in the history of the College. Time had brought changes, and Miss Cust was the first woman to become a member of the veterinary profession. She was not the only lady who had had a disappointment (this referred to the fact that for a great many years Miss Cust has, in spite of all her knowledge and experience, been unable to gain admission to the College), but in spite of her disappointment, she had done as much strenuous work in alleviating the sufferings of animals as she would do now.

The members who attended to receive their diplomas were Messrs. E. R. Ambrose, W. Bridgeman, R. C. H. Fisher, A. A. Forsyth, E. J. Gill, J. Heath, A. W. Stableforth, and Miss Cust.

R.C.V.S. Council Election, June, 1923.

REVISED LIST OF NOMINATIONS TO DATE.

BRADLEY, Dr. O. CHARNOCK, Edinburgh,	H. Sumner.
CRAIG, Prof. J. F., Dublin	J. H. Norris.
	Sir J. M'Fadyean.
GAIGER, S. H., Glasgow ...	Sir L. J. Blenkinsop.
	Sir S. Stockman.
GOFTON, A., Edinburgh ...	H. Sumner.
	J. Penberthy.
HOWARD, P. J., Ennis ...	J. W. Brittlebank.
	T. Spencer.
McINTOSH, J. W., London	J. Willett.
	G. P. Male.
MALE, G. P., Reading ...	H. Sumner.
	J. Willett.
ROBERTS, H. L., Ipswich ...	P. R. Turner.
	E. A. Hudson.
STOCKMAN, Sir S., London	Dr. O. Charnock Bradley
	W. J. Mulvey.

Equine Longevity and Service.

A correspondent to *The Field*, Mr. R. H. Radford, dealt with this subject in an informative manner in a recent issue as follows:—

Numerous instances of equine longevity and also of long service have been recorded in your columns from time to time and in the columns of other journals, and perhaps the following may be of interest: Vice-Admiral Woollcombe in the *Field* in 1903 (I think the issue for September 5th) mentions an old horse thirty-four or thirty-five years of age still going strong and sound and doing useful work. "Charley," he writes, "was bought at St. Mewan, Cornwall, by my brother, the late Rev. G. L. Woollcombe, when rector of that parish in the middle of 1872, as a four-year-old gelding, so he was probably foaled in April or May, 1868. Charley was driven on country clergyman's work to 1889, when, with my brother, he moved to Hemerdon House, where he was much used, first as one of a pair, and latterly in a small four-wheeler for five or six years. Then the horse went to the Home Farm for light work, which included a weekly journey to Plymouth in a spring cart (seven miles each way); this he still continues to do, and makes nothing of it. The horse is of a most friendly disposition, and has always made his own pace in a very hilly country." In the *Field* of September 27th, 1919, there was a very interesting account of "an old equine postal servant," which worked a mail cart for twenty-two years in South Devon, but came to an untimely end. Unfortunately it was not stated at what age this animal commenced its postal service.

In the issue for September 21st, 1907, of *Horses Illustrated*, a publication now defunct, there appeared a photograph of a twenty-six-year-old coach wheeler named "Jack," which had worked daily for twenty-two years in the Keswick and Ambleside coach, often doing the double journey. Again, Mr. W. C. Blackett, a mining engineer, has record of a Shetland pony ten hands high which spent over twenty years in a coal mine. He was put to work in 1876 at five years old, and ceased work twenty and a half years later, in 1898, aged twenty-seven years, and was never sick or sorry during the whole of his working life, the six weeks' strike of 1879 and the thirteen weeks' strike of 1892 being the only occasions when he was idle. In 1896, when twenty-five years old, he took third prize among twenty other pit ponies shown in Durham. In the issue for October 19th, 1907, of the same publication there was reproduced from a painting a photograph of a horse entitled "Old Bill at the Age of Fifty-Six Years. Property of the late Mr. S. Francis Petrie, of Edinburgh," with the following account: "It is highly probable that the name of the late Mr. Petrie's Old Bill will be handed down to posterity as that of the longest-lived horse whose age has ever been satisfactorily verified. The accompanying illustration is from a painting which has been kindly lent to us by Professor Owen Williams, of Liverpool, who, as was his father before him, was the professional attendant on the old horse. On the back of the painting appears the following inscription: 'July 30th, 1884. This portrait of Old Bill (age 57)' fifty-seven years, and living still, was taken when he was (56) fifty-six years old. Presented this day, with the kind respects of Mr. Stephen Francis Petrie, of Edinburgh, to Professor Williams, of the New College, Edinburgh, with the hope that he may live and attend occasionally on an old friend; or, if unable, that he will be able to send as efficient a substitute as he was represented by to-day.—S. F. Petrie.' Old Bill, to the knowledge of Professor Owen Williams, lived until he was over sixty years of age, but was ultimately destroyed on the death of his owner, Mr. Petrie. He was being worked lightly at the time his likeness was taken, and enjoyed good health, feeding well, and his teeth were good."

In a supplement to the *Field* for June 21st, 1902, appeared a photograph of the late Emperor Frederick's charger Perseval, a Hanoverian horse, which carried his owner in the Franco-Prussian War, and also in the Jubilee procession through London in 1887, and was nearly forty years old at the time the photograph was taken. Then Sir Charles Napier's favourite mare Molly lived to the age of thirty-five years. The late Captain M. H. Hayes, F.R.C.V.S., in his *Veterinary Notes for Horse Owners*, 7th edition, 1906, in the chapter on the age of the horse records instances of horses living to the age of forty-nine years. The longevity of horses was evidently an interesting subject in the days of Delabere Blaine, as in his *Outlines of the Veterinary Art*, 2nd edition, 1816, he states: "The instances of their being vigorous and strong at thirty and thirty-five are very numerous. A gentleman at Dulwich, near London, has three monuments of three horses, who severally died in his possession at the ages of thirty-five, thirty-seven, and thirty-nine. The oldest, it is to be remarked, was in a carriage the very day he died, strong and vigorous, but was carried off in a few hours by spasmodic colic, to which he was subject. At Chesham, in Buckinghamshire, there was a horse of thirty-six years old, who exhibited no symptoms of debility, nor any external signs of age, being only covered with warts. It was remarkable with regard to this four-footed Nestor that when an unusual hard day's work was required he was always chosen as never failing in what was expected from him."

In the fourth edition of the same work, published in 1829, the author refers to a large horse of the Mersey and Irwell Navigation, which was "well known to have been in his sixty-second year when he died." Mr. Culley, in his *Observations on Live Stock* (referred to by Blaine), mentions a horse he knew who "lived to forty-seven years of age, having during that time a ball in his neck, received in the battle of Preston, in the rebellion of 1715, and which was extracted at his death, which happened in 1758; and judging him at four years at the time he received the wound (and it is probable he was more), he must at his death have been forty-seven."

Recent Researches in Animal Nutrition.

Dr. J. B. Orr, Director of the Rowett Research Institute, Aberdeen, in the course of a lecture to the Morayshire Farmers' Club on November 10th, pointed out that it was now known that there was a wide difference in the composition of the different proteins, and that the value of proteins for feeding depended upon their composition. The more nearly the protein of the feeding stuff resembled the protein of the tissues of the animal being fed, the greater was the utilisation of the food. He referred to

several feeding experiments that had been conducted, which showed that in some cases 65 per cent. of the protein could be utilised with animals, and in other cases as low as 25 per cent. With regard to the mineral requirements of animals, it had been too readily assumed that any combination of feeding stuffs would supply all the minerals that the animal required. The only thing that might be necessary to add was common salt. Continuing, he said the ration for young pigs would need to contain one ounce of lime for every pound of protein. Experiments conducted at the Rowett Institute showed that a young pig of three or four months old needed nearly half an ounce of lime per day in its food. Examples of feeding stuffs often fed to pigs were given to show that it was exceedingly difficult for an animal to get anything like this amount.

Dr. Orr believed that the mineral balance of the food was one of the most important considerations in considering feeding stuffs for animals. Unless all the minerals were present in the proper amounts and proportions, the full value was not got from the ration, and there was the danger of the animal suffering from ill-health. A short history of how a knowledge of vitamines should be acquired was given. The lecturer pointed out that that knowledge had been derived almost entirely from experiments carried out on small animals such as rabbits and guinea-pigs. The general conclusion reached was that the farmer should hold his judgment in suspense until more direct evidence was available. The one point brought out was that cod liver oil was good for young stock, but that, of course, the farmer had known for many years.

The lecturer showed that an increasing knowledge of nutrition tended to make the feeding of stock a more difficult matter. They had yet to find out what the requirements were of all the different essential constituents of food for different animals for different purposes, and they had then to find out what the composition of the foods was so that we could balance the ration to contain exactly what was required for the animal, and so get the most complete utilisation of it.—*The Scottish Farmer.*

Royal College of Veterinary Surgeons.

LIVERPOOL EXAMINATION RESULTS, DEC., 1922.

Class A.

Class B.

W. B. J. Elliott.

Class C.

R. Hedley.
F. L. Munslow.
R. P. Parsonage.
E. G. Robertson.
A. B. A. Stone.
C. T. Trevers.
O. L. Williams.
N. Woolley.

Class D.

J. W. Thwaite.
H. Thornton.

A LONDON CORRECTION.

In the list of successful candidates in the Final Examination in London, given in our issue of December 23rd, an asterisk was wrongly placed by the name of Mr. J. Heath, instead of by the name of Mr. J. Holt, who was awarded 2nd Class Honours. We regret that the mistake should have occurred.

The Veterinary Record.

6th January, 1923.

A REVIEW AND AN APPEAL.

By HENRY SUMNER, M.R.C.V.S.

The first issue of the *Record* for the year 1923 is the time when the future welfare of the publication and the success of the N.V.M.A. fill us with concern as to the efforts which are necessary from every member of the profession if he is to do his share in making the Association more fully representative, in order to command a claim to speak and act for the majority. Although up to a point the membership is satisfactory, there is great room for an increase in numbers and activity. With such an impetus great improvement in our professional status in the value of the *Record* would accrue. We should be able to reduce the cost of production, whilst adding appreciably to its value as a representative organ.

To this end an appeal is earnestly made. Assistance is requested in recording clinical matter, and it is desired that each issue of the paper should contain such communications—not by any means of material of an unusual and indefinite pathological condition. Latterly several members in the London area are co-operating with the General Secretary as an Editorial Committee. The success of the conjoint effort is already to be noticed, and we wish them further success, and thank them for their labours.

The year which has just closed has assisted us towards success. The Bath meeting was one of the best in the history of the Association, and we look forward to the meeting in Yorkshire to equal or surpass that effort. The Scottish Branch was the honoured medium for the issue of a report of research work into the so-called Grass Sickness in Horses, instituted and largely supported by the Highland and Agricultural Society. We trust the valuable work recorded will bear the test of further scientific investigation, and may be the means of reducing animal suffering and the consequent losses to stock owners.

The fact that our able and indefatigable General Secretary has been appointed to a position under the Ministry of Health also marks a very valuable asset to the profession. The whole profession wish Mr. Buxton every happiness and success, and acknowledges its indebtedness to him for his work on behalf of the N.V.M.A., which it hopes he may still continue to assist.

The financial position of the Association is a matter of concern, from the fact of the large number of subscriptions which remain unpaid. The year which has ended has been difficult for many practitioners, who have felt very acutely the financial stringency of the times. We trust, however, an effort will be made to relieve the anxieties of the Council in this matter. We ask for help and will welcome constructive criticism. Will each Branch undertake to feed the central body and its publication? Great assistance in this work is possible from these sources. At the meeting of the Scottish Branch it was remarked that our periodical might with advantage contain a "personal" column in which the honours and distinctions of our members in the work of the community would appear. It was remarked that no acknowledgment in our professional press had been made of the appointment of Mr. Lindsey and Mr. MacAlister to positions of honour in their local councils. We do most heartily congratulate them and others who have so earned the esteem of their fellow men. These and other evidences indicate a recognition of the value of our profession and its practitioners as an asset to the public weal. Surely local secretaries might note such appointments to the editor.

From the membership of the N.V.M.A. and the number of members of the profession who are sufficiently interested to fill up the voting paper for the election of Council it appears that, out of a total of 3,000, only 1,000 or thereabouts fulfil what surely should be a duty to the profession to which they have the honour to belong. How is it? The answer is obscure. We do hope that a greater sense of responsibility will be noticeable in the future, and it is the bounden duty of each one of us to help to increase the interest of those who, for some cause or other, fail to exercise their right and duty.

We also hope in the future that the sense of brotherhood in a common cause—the advancement of the profession—may be more in evidence, and that we may be more tolerant to those who differ from our sense of the "fitness of things," so eliminating the regrettable element of personal animus. Let us try to understand those whose opinions differ from ours and be generous in our judgment. "Behold the time changeth"—and we welcome the coming amongst us of a member of the gentler sex. May women find the practice of the profession a congenial work, and add to its dignity and advancement.

At an Examination for Inspectors of Meat and other Foods held at London on December 15th and 16th, 1922, twenty-five candidates presented themselves. The following twelve candidates were awarded certificates:—Elvy, L. T., Lt. R.A.S.C., Bulford Camp; Gardner, A. H. C., Capt. R.A.S.C., Shorncliffe; Gill, G. W., Lt. R.A.S.C., Chatham; Heeley, H. J., London; Howard, H. Norwich; Moonsawmy, H. A., London; Page, C. W., Watford; Rodgers, C., Ashford; Smith, H. K., South Hackney; Vigar, A. L., Brighton; Winchester, E. W., Islington; Woolf, E. S., Capt. R.A.S.C., Salisbury.—E. White Wallis, *Deputy Registrar.*

MILK AND DAIRIES (AMENDMENT) ACT, 1922.

The following circular (No. 356) has been addressed to the Clerks of the County Councils and Sanitary Authorities of England and Wales:—

Ministry of Health.
Whitehall, S.W.1,
12*th December*, 1922.

Milk and Dairies (Amendment) Act, 1922.

Sir, Special Designations.

I am directed by the Minister of Health to refer to the observations contained in Circular 335 with regard to Section 3 of the Milk and Dairies (Amendment) Act, 1922, and to enclose for the information of the Council a copy of the Milk (Special Designations) Order, 1922, prescribing the terms and conditions subject to which licences may be granted for the sale of milk as "Certified," "Grade A (Tuberculin Tested)," "Grade A," or "Pasteurised."

The Order provides for the issue of licences as follows:—

(1) By County and County Borough Councils (and in certain circumstances by Urban and Rural District Councils) to Producers of "Grade A" Milk.

(2) By Sanitary Authorities to

(*a*) Distributors of "Certified" Milk.

(*b*) Distributors of "Grade A" Milk, including "Grade A (Tuberculin Tested)" and "Grade A (Pasteurised)."

(*c*) Distributors of "Pasteurised" Milk.

(Note.—A licensed producer who distributes his milk to consumers direct from the farm will not require a licence from the Sanitary Authority.)

The Minister will for the present issue licences to producers of "Certified" and "Grade A (Tuberculin Tested)" Milk, who will be entitled to sell the milk produced under such licences as "Grade A" Milk, without further licence from a Local Authority.

The Minister is advised that the conditions now prescribed for "Grade A" Milk are such as should provide milk that is superior to the ordinary milk of the country and reasonably safe under all ordinary circumstances, and at the same time bring the production and distribution of the milk within the competence of all careful dairymen.

Procedure of County Councils.

On receipt of an application from a farmer for a licence to sell "Grade A" milk, it will be necessary for the County Council to nominate a Veterinary Surgeon to examine the herd, and until further notice the Minister concurs in the nomination of any person for the time being holding the appointment of Local Veterinary Inspector of the Ministry of Agriculture and Fisheries or the appointment of Veterinary Inspector to a Local Authority under the Diseases of Animals Acts, without reference to the Minister.

If in any case it is considered desirable to nominate a Veterinary Surgeon who does not hold either of these appointments, a special request should be made for the concurrence of the Minister.

It is also desirable that the County Council, on receiving such an application, should require the applicant to have one or more samples of his milk submitted to bacteriological examination at his own expense, and should satisfy themselves that the results of the examinations are such as to make it reasonably probable that the milk will comply with the prescribed tests at the time of distribution.

Where the producer delivers milk to the consumer direct from the farm it will be necessary for the County Council also to issue the distributor's licence and to exercise or arrange for the exercise of the functions of a Sanitary Authority with regard to such milk.

Procedure of Sanitary Authorities.

The action to be taken by a Sanitary Authority on receipt of an application from a distributor for a licence will depend on the designation proposed to be used. In every case except that of "Pasteurised" Milk it will be necessary for them to ascertain the source of supply, and then to satisfy themselves that the corresponding licence has been issued to the producer.

In the case of "Certified" Milk a licence may ordinarily be issued without further enquiry.

In the case of "Grade A (Tuberculin Tested)" or "Grade A" Milk the Authority must verify that the distributor has an efficient arrangement for bottling, and that, until after bottling, the milk is being dealt with in a part of the premises separate from other milk. The Authority should also arrange for an examination of the caps and seals proposed to be used, and should require the applicant to have one or more samples of the milk submitted to bacteriological examination at his own expense.

Apart from procedure in connection with new licences, the principal function of a Sanitary Authority will be to take samples of milk from time to time and arrange for them to be submitted to bacteriological examination. The Minister should be informed of the laboratories to which it is proposed to send the samples, and of the estimated cost. In taking samples of "Certified" Milk, the Authority will be acting as agents for the Minister, who will require to be satisfied as to the arrangements proposed and will repay the appoved cost of the examinations. The Minister thinks it desirable that samples of "Certified" Milk should be taken on the average at the rate of about one sample a month for each producer, the samples generally being taken from time to time from all the distributors concerned. A set of instructions as to the taking and testing of samples will be issued shortly.

When an unfavourable report is received with regard to a sample of "Grade A (Tuberculin Tested)" or "Grade A" Milk, the special attention of the distributor should be drawn to the matter, and he should be advised to take steps to discover the cause of the defect and to remedy it if it is due to any default of his own, or to arrange with the producer to do so if the latter is responsible. If a further unfavourable report is received, it will be necessary for the Authority to consider whether they should take steps under Article 9 of the Order to suspend or revoke the licence, and in this connection it may be observed that a distributor who cannot deliver milk that regularly satisfies the prescribed tests is not entitled to hold a licence, even though the failure may be due to the conditions of his source of supply, and not to any fault of his own.

Notwithstanding the precautions taken in the examination of the herd, it may occasionally happen that tubercle bacillus is found in milk of any grade. If this should at any time be reported, full information should at once be given to the Minister or the County Council, as the case may be, who will inform the producer and require him to take steps to ascertain which animals are affected, and to remove them from the herd. The steps taken would generally include bacteriological examinations of the milk of individual cows or groups of cows, and the licensing authority will no doubt facilitate the enquiry by arranging, where necessary, for the bacteriological examinations at an appropriate charge.

"Pasteurised" Milk.

The Order lays down the general conditions governing the sale of milk as "Pasteurised," the essential condition in the matter of treatment being that the milk must be held at a temperature between 145° and 150° Fahrenheit for a period of at least half an hour. It is desirable for purposes of control that every pasteurising plant should be provided with an automatic recording apparatus.

The prescribed conditions definitely exclude the "flash pasteurisation" process by which milk is heated to a high temperature (*e.g.*, 170°) for a short period. But it is also to be observed that the apparatus must be such that all the milk is held for the prescribed period, and in examining other types of pasteurisers, it will be for the Licensing Authority to determine whether the prescribed conditions are complied with. The Minister is advised that no process except that which is commonly known as the "positive holder" process has yet been shown to satisfy these conditions.

In laying down the nature of the process which is for the present to be recognised as pasteurisation, the Minister wishes to make it clear that he will at any time be prepared to consider the question of making a further Order extending the definition of the term so as to embrace any other pasteurising process which can be shown to produce similar results in regard both to the destruction of pathogenic and other bacteria and to the preservation of the original properties of the milk.

General.

The Order prescribes the amounts of the fees payable for the various licences. These fees will be paid to

the Authorities by which the relative licences are issued, and they have been fixed at such amounts as may be expected on the average to cover the expenditure of Licensing Authorities under the Order. But it should be understood that the amounts of the fees will be reconsidered and if necessary revised when sufficient experience has been gained of the working of the scheme.

It will be seen that Section 3 of the Act makes it an offence in certain circumstances to describe or refer to milk by a prescribed designation *except under and in accordance with a licence.* It would appear therefore that legal proceedings might be taken against a licensee who sold milk under such a designation contrary to the conditions governing his licence, but it seems to the Minister that as a general rule such a contravention would best be dealt with by the revocation of the licence, though a prosecution might be desirable in an especially flagrant case. The section would, however, be appropriate for enabling proceedings to be instituted against a person who uses a prescribed designation without a licence. Under Section 10 the power of taking proceedings for such an offence is conferred both on the County Council and on the Sanitary Authority. It is thought, however, that such proceedings would most conveniently be taken by the Authority having power to issue or refuse the licence or, where such power is retained by the Minister, by the Authority exercising functions under the Sale of Food and Drugs Acts.

I am to add that the Minister will be pleased to assist Local Authorities in making their arrangements in connection with licences, and he would be glad to receive, during the next year, statements at intervals of three months, showing the numbers of licences of each kind which have been issued. Lists of the persons at present licensed by the Minister to sell graded milk are being prepared for every area, and the appropriate list will be sent to every Licensing Authority in whose area any person is so licensed, as it may be expected that applications will be received from such persons. As the Order will come into operation on the 1st January, 1923, licences in these cases may at once be issued, having effect as from that date. It is not necessary that an application for a licence should be in any special form, but it will probably be found convenient for all parties that suitable forms should be issued and used. Copies of suggested forms suitable for ordinary cases are contained in the appendix to this Circular, together with a copy of the approved form of Veterinary Surgeon's Certificate.

Further copies of this Circular and of the Order may be obtained through any bookseller or directly from H.M. Stationery Office.

I am, Sir,
Your obedient Servant,
A. K. MACLACHLAN,
Assistant Secretary.

Abstracts and Reviews.

Canine Distemper: Its Complications, Sequelæ and Treatment.

This little book, which does not pretend to be original and sets out to recapitulate the various theories and clinical facts which have been published from time to time concerning canine distemper, makes very interesting reading, and, at any rate with regard to the bacteriological notes and etiology, it may serve as a book of reference, since it details most of the theories and work that have been published for many years.

The author, however, does not claim to have been able to carry the problem any nearer its solution.

Since he makes these points quite clear in his preface, it, to a very great extent, disarms criticism—and yet the book will afford the captious critic plenty of material to work upon. For example, in his definition of the disease, the author states, "It is chiefly, but not essentially, a disease of young animals of the canine and feline races, appearing sporadically, enzootically, or epizootically." There will probably be very few who are experienced in the disease who will agree with the latter portion of that sentence, that true distemper is ever sporadic, while we are unable to reconcile the former portion of the sentence with the statement on page 9, that "It has been my experience that a cat will not naturally contract distemper from a dog sick with it"—a statement with which most practitioners will be more likely to agree.

In the chapter dealing with the historical side of the question, the author quotes an extract from a paper by M'Gowan, on a laboratory epidemic of distemper, which is intended to convey the information that five laboratory workers all contracted distemper—and also a statement that "A kennel-man of 40 years' experience told me, without my asking leading questions, that he had had distemper several times." It seems rather a pity that it should have been thought necessary to include such statements as these, as they only tend to discredit any further views which may have been published by the same author. It is surely extraordinary that a medical man should accept and consider worth recording a kennel-man's diagnosis of distemper in the human subject. We know of nothing to prevent laboratory workers or kennel-men contracting any of the common catarrhs of man in the course of an outbreak, even though they may at the same time be associated with dogs affected with distemper. Surely one is not justified in such cases in assuming that the human affection is canine distemper.

The author gets rather wide of his subject when he attempts to prove an analogy between the *Bacillus suipestifer* in swine fever and the *Bacillus bronchisepticus* in canine distemper, particularly as he appears to accept Ferry's assertion that the latter organism is the cause of distemper—an acutely contagious disease. He states that the *Bacillus suipestifer*, if fed to healthy pigs, will produce a typical attack of swine fever, and, later, that swine fever so produced is not naturally contagious to other pigs. Surely swine fever is a serious contagious disease, and any condition set up which is not contagious cannot be regarded as a typical attack of swine fever. On the other hand, if he intends to convey that the *B. bronchisepticus canis* produces a disease that is not naturally contagious to other dogs, he cannot at the same time assert it to be the cause of canine distemper.

In many such ways does the author make questionable statements, with a tendency to reverse them later.

To the treatment of distemper many pages are devoted, and a number of prescriptions are given—quite sufficient to confuse any but the most experienced practitioner. One is rather interested, however, to note new suggestions, as, for example, the administration of apomorphine as an emetic in the treatment of gastritis of distemper. One fails to see how that measure could possibly be justified. The author also recommends, on page 221, the use of ½—1 *per cent.* solution of potassium permanganate as an antiseptic for the eye. Such a lotion would have disastrous results in conjunctivitis, and particularly so if an ulcer of cornea existed.

Elsewhere (page 125) the author states that the peritonitis is *always very* fatal—it would be interesting to know how it could be *always partly fatal.*

The book is furnished with an index, but under the heading "Prescriptions," numbers are given without any indication of the particular condition for which the prescription is recommended, and, if one were looking for any special prescription, it would be necessary to turn up all of them to find any particular one.

On the question of the prevention of distemper, one is left, after reading all the evidence the author has been able to collect, without any indication as to whether he considers any of the various vaccines of any value or not, and whether he would definitely recommend their use.

The illustrations of the book are fairly good, but some are very crude, and in this respect one would refer particularly to fig. 19 on page 161.

(Canine Distemper: Its Complications, Sequelæ and Treatment, by W. HAMILTON KIRK (Capt.), M.R.C.V.S. Pp. xiv. + 226, with frontispiece and 28 other illustrations. Demy octavo. Published by Baillière, Tindall and Cox, 8 Henrietta Street, Covent Garden. Price 10/6 net.)

Serum Diagnosis of Dourine.

The author has employed the following methods in the serum diagnosis of dourine:—Deviation of the complement using watery and alcoholic extracts as antigen, agglomeration macroscopic agglutination, precipitation, and lipoid fixation reaction. The paper also contains accounts of experimental treatments with various drugs.

It was found that alcoholic extracts were superior to watery extracts as antigen. The trypanosomes used for making the extracts were obtained by bleeding out rats infected with *T. equiperdum* shortly before death.

The strain of *T. equiperdum* used was apparently one isolated during an outbreak of dourine in Prussia. In a comparative set of tests the alcoholic (alcohol-æther) extract appeared to be about six times as effective as the watery (carbolised salt solution) extract.

In a not inconsiderable number of cases the results appeared to indicate that when plaques appeared the amount of antibody present in the serum decreased. A persistent reduction in the amount of antibody associated with the appearance of fresh clinical symptoms appeared to indicate a bad prognosis.

Repeated injections of trypanosome extracts or rat blood containing trypanosomes into rabbits was found to cause distinct variations in the antibody content of the rabbits' serum.

The specific nature of the complement deviation obtained with dourine horses was tested by carrying out tests with sera from a number of horses affected with glanders, epizootic lymphangitis, infectious anæmia and strangles, horses immunised against swine erysipelas, and a number which gave positive serum tests for equine contagious abortion. In no case was a positive result obtained.

With a view to ascertaining whether the antibodies present in dourine sera would react with other extracts, a number of experiments were carried out in which the following were used: extracts of hearts and spleens of rats dead of dourine, hearts of healthy rats, various extracts of hearts with and without cholesterin, extracts of glanders bacilli, paratyphoid bacilli, colon bacilli, and Bang's bacillus.

In all cases negative results were obtained, save in those in which the organs of infected rats provided the antigen.

A few agglomeration tests showed that positive sera give agglomeration within five minutes. Agglomeration requiring a longer time is not specific. No details of the technique employed for this test are given.

Owing to the spontaneous clumping of trypanosomes, the author did not proceed with the macroscopic agglutination test.

The precipitin test was found to be far inferior to the deviation of the complement test. In four sets of experiments the percentage of dourine sera failing to give positive reactions ranged from 10 to 27 per cent.

The Sachs-Georgi reaction entirely failed to distinguish dourine sera from any others. Lipoid fixation is more reliable than complement deviation, but it is most important that the sera must be rendered absolutely clear by centrifugation. The lipoid fixation reaction does not vary as does the deviation of the complement test; it is also far more accurate in cases which have been under treatment.

Treatment was carried out with neosalvarsan, silversalvarsan, Bayer "205," and neosilversalvarsan. Neosalvarsan was given in doses of 12 gm., and two doses were given at an interval of eight days. Good results were obtained in six cases.

Silversalvarsan is likely to cause abortion in pregnant mares, and in some animals trembling of the back and limbs may be observed after an hour or two. Twelve animals were treated with this drug, 10 gm. being given in doses of 4, 2 and 4 gm. at intervals of eight days. Excellent results were obtained.

Bayer "205."—Five horses received a total of 15 gm. in doses of 4, 4, 4 and 3 gm., and five were given 20 gm. in doses of 4, 4, 4, 3, 3 and 2 gm.

The results were apparently as good as those obtained with the above drugs, but the animals treated with Bayer "205" were not able to work so well as those treated with salvarsan and became fatigued more rapidly.

The results obtained with silversalvarsan will be reported later.

Twelve foals of dourine-infected mares were tested (method not stated), and two gave positive results. At three months old these failed to react and they never showed any symptoms.

[DAHMEN (H.) Die Serodiagnostik der Beschälseuche. (The Serum Diagnosis of Dourine.)—*Arch. f. Wissen. u. Prakt. Tierheilk.* 1922, Mar. Vol. 47. No. 5, pp. 319-353.—*Ex. Trop. Vet. Bulletin.*]

The Treatment of Epizootic Lymphangitis.

A certain cavalry barracks was used during the war as a veterinary hospital, in which there were cases of epizootic lymphangitis from time to time. In spite of disinfection, cases of the disease began to make their appearance when the barracks were again occupied by cavalry after the war. The first case developed in December, 1919, and during the next 16 months 36 animals were under treatment for the disease. Five of these were given etherised pyo-vaccine, but from September, 1920, onwards all were given heated culture emulsions prepared according to the technique of Boquet and Negre. Weekly doses were given beginning with 1 cc. and increasing by 1 cc. weekly up to a maximum of 5 cc. This dose was given until recovery took place.

Forgeot, who used this method, obtained 65 per cent. of recoveries. The author gives a tabular statement of 31 cases which came under his care. From this the following information may be gathered. The period of incubation ranged from 40 to 212 days. The number of doses of vaccine given varied from 3 to 18. The course of treatment was from 21 to 252 days. In many cases surgical treatment, such as point firing (the abscesses) and curetting, was resorted to. In ten cases the animals were slaughtered, and recovery took place in the remainder.

In no case did deep point firing of the abscesses suffice to arrest the progress of the disease.

It was observed that if obvious improvement does not take place after 8 or 10 injections, the lesions may heal up completely if the vaccination is stopped. If favourable results are not obtained the probability is that the Preisz-Nocard bacillus is also present in the lesions. It is probable that had the use of the vaccine been limited to cases for which the cryptococcus alone was responsible, the percentage of recoveries would have been higher.

In the discussion which followed, Truche drew attention to the difference in the period of incubation of the natural disease and that set up by experimental inoculation. Negre and Boquet found that inoculation with pus produced lesions more promptly than inoculation with culture, the periods of incubation being 15-20 and 30-40 days respectively. The average period of incubation as given by Larieux's figures is 117, and this agrees closely with that obtained by other observers. Emphasis is laid upon the necessity of resorting to artificial culture for diagnostic purposes. Microscopic examination is held to be insufficient.

In cases of mixed infection the cryptococcus vaccine may be given first, followed by vaccine against other organisms present.

[LARIEUX. Contribution a l'etude du traitement de la lymphangite epizootique. (The Treatment of Epizootic Lymphangitis.)—*Rec. Med. Vet.* 1922. Mar. 30. Vol. 98. No. 6. pp. 131-137.—*Ex. Trop. Vet. Bulletin.*]

Action of Cantharidin on the Circulation.

In a paper on the action of blisters on the lungs, the authors describe experiments on dogs, which show that the blister has only a slight influence on the circulation in the lung, but the kidneys become gorged with blood, and show signs of inflammation.

[C. Farmachidis and L. Grossi (*Policlinico*, Rome, March 27th, 1922, 416, through *Journ. Amer. Med. Assoc.*, May 20th, 1922, 1579).]

Formation of Phenol by Bacteria.

A large number of cultures for phenol production have been examined and studied by the author, particularly a *B. coli phenologenes* and a *B. paracoli phenologenes*. The best medium was found to be one consisting of tyrosin, 0·3 gm.; asparagin, 5·0; ammonium lactate, 5·0; magnesium sulphate, 0·2; potassium phosphate, 2·0; and distilled water, 1000 gms. The presence of phenol was demonstrated by the blue Berthelot-Lex reaction (*p*-amidophenol in alkaline reaction in the presence of sodium hypochlorite), which depends on the formation of indophenol. The first-named bacillus yields deep-red colonies on endo agar, and actively ferments glucose and lactose. In the case of *B. paracoli phenologenes*, the endo colonies were white, and lactose fermentation was slighter. The phenol-splitting property of both types was constant. The phenol-forming types of *B. coli* and B. *paracoli* have been shown to be agglutinogenically different from each other and from non-phenologene strains of *B. coli*. Phenol-forming strains of *B. coli* were found in the gut in 85 per cent. of all persons examined. Phenol formation was also demonstrated in three cultures of the bacillus of fowl cholera and in two of *B. ozoenae*, Perez.

[F. Sieke (*Zeitschr. f. Hyg. u. Infektionskrankh.*, 1921, 94, 214, through *Med. Sci. Abs. and Rev.*, June, 1922, 233).]

Internal Parasites of Sheep and Goats.

The sheep bot (*Oestrus ovis*) deposits larvæ in the nostrils of sheep and goats, the greatest infestation occurring during the hot periods of the year, but also taking place on warm days in late autumn, winter and early spring. During fly attacks sheep stand huddled in the shade, protecting their noses either in the grass or under other sheep.

The most pronounced symptoms are seen when the larvæ work their way to the upper air passages of the head and horns. During this time a mucous nasal discharge is seen. This stage generally occurs in the summer or early autumn. In about 6-8 weeks the larvæ become stationary, and the secretion decreases; when mature, they descend to bury themselves in the ground to pupate. Practically the same symptoms may be seen during the descent as during the invasion.

No safe remedy has yet been found, as one strong enough to kill the larvæ would proabaly kill the animal through irritation of the mucous membrane. The following method is recommended:—A plank with holes bored at intervals should be placed over a salt trough. The salt should be kept at such a level that the nose of the animal, when licking it, must touch the edge of the holes. The entire surface of these holes should be smeared once every three days with 1 pint white pine tar to 2 oz. oil of eucalyptus. Larvæ deposited in this mixture smeared on the animal's nose usually die. The mixture may also be smeared with a brush on the nose and adjacent parts at least every week or ten days. The latter method is practicable only for young animals or registered stock.

[Pennett (D. H.). Internal Parasites affecting Sheep and Goats.—*Texas Agric. Expt. Sta., College Station*, Circ. 28, April, 1921, 16 pp, 9 figs. Ex. Ibid.]

Antiscorbutic Action of Raw Potatoes.—That raw potatoes have considerable antiscorbutic action has been known for some time. The author finds that this property is modified by the condition of the material. In experiments with guinea-pigs, whole peeled raw potatoes, used before the development of the green cortex, were found to have a marked antiscorbutic action, equal to that of fresh cabbage leaves or dandelion. Animals receiving it developed no trace of scurvy. Crushed raw potatoes had, in the same doses, a distinctly less antiscorbutic action. The expressed juice of the crushed potato was antiscorbutic, but less powerfully so than the equivalent quantity of the intact tuber. The marc after the expression of the juice was almost inert. Even after the addition of the juice pressed from it, its antiscorbutic action was not materially increased.—[Bezssonoff (*Comptes rend.*, 1921, 172, 92).]

Zinc in the Tissues of the Horse.—All the organs of the horse contain traces of zinc. The amount varies from 3 mgms. to 36 mgms. for every 100 gms. of fresh material. The quantity varies in different organs, and also in the same organ of different individuals.—[G. Bertrand and R. Vladesco (*Comptes rend.*, 1920, 171, 741).]

Association Report.

Derbyshire Veterinary Association.

Annual Meeting.

A meeting of the Derbyshire Veterinary Association was held at the Royal Hotel, Derby, on Tuesday, October 10th, 1922 Mr. J. C. Heather (President) was in the chair, and there were also present Messrs. H. Briggs, F. T. Prince, H. A. King, A. Levie, F. Aulton, T. V. Bagshawe, T. H. L. Duckworth and E. Marrison (*Hon. Sec.*).

Apologies were received from Messrs. De Ville, H. Fairer, R. Rawlins, and P. B. Boyle.

The Secretary read a letter from the Secretary of the Royal College of Veterinary Surgeons, stating that the College had no power to take action against a chemist styling himself "Veterinary Chemist."

It was decided that the President and Secretary for the ensuing year be nominated by the Association as members of the Council of the National Veterinary Medical Association.

Mr. Levie remarked that it was a doubtful honour if the members of the Council had to pay their own expenses to attend meetings.

The Secretary replied that it was impossible to pay the expenses out of the funds of the Association.

The Secretary reported that he had settled his dispute with the County Council in regard to fees, as the result of his charges being met without deduction.

Election of Officers.

Mr. Duckworth, in proposing that Mr. Aulton be elected President of the Association, referred to the latter gentleman as an original member of the Association.

Mr. Heather, in seconding, said he went to the meeting for the express purpose of supporting the election of Mr. Aulton. His advice had always been of value since the Association was formed.

Mr. Levie, as the first President, said he had great pleasure in supporting. They must all do everything in their power to help Mr. Aulton by reason of what he had done for them in the past.

Mr. Aulton, in thanking members for the honour, said he would have preferred that members had chosen as their president someone who had a partner in practice, but as he had always been an advocate of the office going round, he could not well refuse if the members persisted in their nomination.

No further nomination was made, and Mr. Aulton was elected unanimously.

Vice-Presidents elected were Messrs. Heather and Levie.

Mr. E. Marrison, Bakewell, was, for the third time, elected hon. secretary and treasurer.

Messrs. Levie and King were appointed auditors, and the Council of six, in addition to office bearers, were Messrs. Duckworth, Bagshawe, Prince, Briggs, McIntyre and Fairer.

The retiring President was thanked, on the motion of Mr. KING, seconded by Mr. AULTON.

Major T. V. Bagshawe, Uttoxeter, presented a paper (appearing, with discussion, elsewhere in the present issue) outlining operative methods of treatment found successful by him in dealing with certain pathological conditions of the foot.

Major BAGSHAWE exhibited a tooth, which he had extracted under chloroform just under the base of the left ear of a well grown filly foal. He opened up the sinus, and extracted the tooth without much difficulty. It was a molar tooth, whereas he understood in those cases they generally found canine teeth. It was a supernumerary tooth.

A vote of thanks was accorded Major Bagshawe, on the motion of Mr. HEATHER, seconded by Mr. MARRISON.

E. MARRISON, *Hon. Secretary.*

Notes and News.

The Editor will be glad to receive items of professional interest in these columns

Foot-and-Mouth Disease in Glamorgan.

On Saturday, December 30th, the existence of foot-and-mouth disease was confirmed on premises at Ferndale (Rhondda), Glamorgan, and an Order was accordingly issued on Sunday, 31st *ultimo*, imposing the usual restrictions prohibiting movement over an area within a radius of 15 miles of the infected place.

Later information goes to show that the disease was probably introduced by cattle purchased from Ely Market, and it has been decided as a precautionary measure to extend the boundaries of the prohibited area to cover the approximate area of distribution from this market. An Order giving effect to this decision has been issued. The affected cattle (eleven in number) have been slaughtered together with sixty sheep which were in contact with the diseased animals.

In the House of Commons, just prior to the recess, the Minister of Agriculture informed Commander Bellairs as to the compensation paid for animals slaughtered in the series of outbreaks of foot-and-mouth disease which occurred between January and August, 1922:—

Gross compensation	£791,962
Less receipt from salvage of carcases ...	151,085
Net	£640,877

Of this net expenditure one-half was defrayed from the Local Taxation Account. In the case of swine fever the compensation paid during the financial year 1921-22 for pigs slaughtered amounted to £2,531, which formed part of the Ministry's total expenditure of £45,592 in connection with swine fever. Of this amount £6,592 fell to be defrayed from the Local Taxation Account.

R.C.V.S. Diploma Presentations.

A ceremony which is unique in the annals of Veterinary history took place at 10 Red Lion Square, London, W.C.1, on December 21st, when the President, Mr. Henry Sumner, presented their diplomas to a number of recent graduates.

The President said, "Miss Cust and Gentlemen,—I am pleased to have the privilege of being present to award diplomas to a number of you who have recently graduated. I congratulate you on the successful result of your endeavours and also upon entering our profession for your life's work. Ours is an honourable profession, even if it is not so high in the estimation of some as we would wish. A time will surely come, however, when a wide recognition will be attained. Reviewing the scope of our work as a whole, one recognises three principal branches, namely: the Public Services (which include Imperial, Colonial and Municipal appointments), general practice, and research work. At the present time the last appears to occupy the most important position. As President of the Royal College, it is a matter of deep regret to me that we on the Council of the College represent the minority of the profession. With a total membership of over three thousand, it is regrettable that sometimes less than one thousand vote for the election of members of Council. I appeal to you recent graduates to associate yourselves with the various societies of the profession and not to become part of the two thousand who keep aloof."

The President then presented the diplomas and so concluded a memorable ceremony.

C.B. for Colonel F. W. Hunt.

In the New Year Honours list appears the name of Colonel Frederick Welsley Hunt, C.M.G., C.B.E., Deputy Director of Veterinary Services, Southern Command, who has recieved the appointment, Commander of the Most Honourable Order of the Bath.

Obituary.

NIXON, HERBERT, 85 Wilkinson Street, Sheffield. Graduated 30th March, 1874. Died 28th December, 1922. Aged 71.

BONNETT, J. C., Snowflake, Manitoba, Canada. Graduated London, 4th April, 1887. Died 20th November, 1922.

Mr. Herbert Nixon's Work for Sport.

Mr. Herbert Nixon, M.R.C.V.S., died at his home, 85 Wilkinson Street, Sheffield, on December 28th, from heart trouble, from which he had been suffering for some time.

Mr. Nixon, who was a brother of the late Alderman Tom Nixon, was a Conservative, and was formerly the secretary of the Brightside Conservative and Constitu-

tional Association. He was often asked to stand for municipal honours, but could never be persuaded to do so. He was probably best known as a director for many years of the Wednesday Football Club, Ltd., even in the days when they were playing at Olive Grove, and was for a time vice-president. He retained his seat on the directorate of the club till about two years ago, when his place was taken by his son, Mr. S. H. Nixon, M.R.C.V.S., who was also with him in the business, and will carry it on. Mr. Herbert was a prominent Freemason, a member of the Wentworth Lodge, and a P.P.G.D. of West Yorkshire. He was educated at the Milk Street School, where so many prominent Sheffield citizens received their early training.

He leaves a widow, two sons—Messrs. S. H. and J. E. Nixon—and three daughters—Mrs. B. P. Peasegood, Mrs. J. A. Truelove, and Miss A. M. Nixon. The burial took place on New Year's Day, at the Sheffield General Cemetery.—*Sheffield Daily Telegraph.*

Our Wasted Slaughter By-products.

"If we made full use of our animals with regard to the conservation of by-products, as is done in America and other countries, we would not only be providing work for thousands of people, but would also be saving for the use of the nation much valuable material which cannot be produced by chemists synthetically."

This statement was made by Professor Share Jones, of the Veterinary Department of the Liverpool University, in an interview with a *Liverpool Daily Courier* representative.

It was perhaps significant, he said, that when reference was made to the question, Great Britain found herself classified by authorities in the same category as Turkey—retrogressive. Such countries as Peru and Brazil were far ahead of us. There was no system here.

We not only allowed our diseased carcases to completely waste, but did not even fully utilise the healthy ones

Loss of £6,000,000 a Year.

Some idea of what the country lost would be obtained from the fact that the value of diseased live stock destroyed in Scotland and England and Wales each year represents roughly £6,000,000.

America, on the other hand, had during 1919 alone extracted every possible by-product from 212,245 diseased carcases, and from hundreds of thousands of partially diseased cattle, certified unfit for human consumption.

When dealing with the animal body commercially, added the professor, science was so brought to bear that nothing was lost except the breath. It was therefore strange that a country which owned £450,000,000 worth of cattle, in these islands alone, should be without a properly organised system for conserving by-products.

Blind Worship of Paper Pedigree.

Writing in the *Live Stock Journal Annual* on Shorthorns, Mr. A. W. Hickling, while deploring the bad times Shorthorn breeders are experiencing, is yet confident of the future for breeders who continue their herds and can offer the type and quality when the demand arises. Then he goes on to say a warning note has from time to time been sounded, but generally unheeded, against the infatuation for so-called fashionable pedigrees, without the accompanying individual excellence. This blind worship of paper pedigree has already brought disaster, and will do so much more if breeders fail to realise that the demand is for the animal rather than its ancestral quarterings. The present generation is either unmindful or ignorant of the lessons of the late 'seventies and 'eighties. Again, it would be very rash to assert that these so-styled fashionable pedigrees, which have found so much favour during the boom 1915-1920, will be the top berries of future trading, but rather will it be first the animal and then the pedigree.

Another phase of beef Shorthorn breeding is the long neglect of milking qualities, which require adjustment. A duplicate herd of nursing cows can scarcely be viewed with complacency at present, nor is it in the best interests of the breed that it should be necessary to do so. Not only is milk an economic factor no cattle breeder can afford to neglect, but the greater encouragement of good milkers in a herd unmistakably tends to an improvement in the quality of level flesh; in fact, it is well known that rough, patchy coverings increase in proportion to the decreasing inheritance of milk in the breed of cattle. And, apart from the value of milk, good yielders are generally the better and more regular breeders in a herd. It is not impossible to maintain weight and quality in Shorthorn bulls and good milk vessels in cows by intelligent selection and rearing.

Milk Yields of Cattle.

Professor James Wilson, M.A., B.Sc., reading a paper before a recent scientific meeting of the Royal Dublin Society, said that ten years ago, working on data collected from the cows exhibited at the London Dairy Shows, he found that if cows' yields at eight years old be set down as 100, the yields at earlier ages work out at about 67 for three-year-olds, 81 for four-year-olds, 90 for five-year-olds, 95 for six-year-olds, and 98 for seven-year-olds. These figures, excepting those for three-year-olds, were substantially confirmed by Mr. W. Gavin, who was working with the data collected in Lord Rayleigh's dairy herds in Essex. Mr. Gavin's figures for three-year-olds were lower, probably because some of his three-year-olds were younger.

Recently Dr. Raymond Peare, of Washington, and Dr. Tocher, of Aberdeen, working with data collected by the Ayrshire Cattle Milk Records Committee, have found figures which put the yields for the younger ages considerably higher. Professor Wilson showed that the Ayrshire records cannot be used to find how yield increases with age because the breed has been out of equilibrium since about twenty years ago. Since that time the breed has been improved in yield by a method which first affects the two-year-olds, then two and three-year-olds, then two, three and four-year-olds, and so on, and till the breed is again in equilibrium the records are loaded in favour of those of the younger ages.

He also found that if twelve months from calf to calf be taken as the normal lactation period, the annual yield is reduced by about 20 gallons in an eleven months' lactation and increased by about 35, 65 and 90 gallons in thirteen, fourteen and fifteen months' lactation periods.

Summons by R.S.P.C.A. Dismissed.

At Greenwich Police Court, on December 27th, George William Morris, described as a vermin exterminator, of Blenheim Grove, Peckham, was summoned by the Royal Society for the Prevention of Cruelty to Animals for placing poisoned bread on land at Lee. Mr. Gordon Jones, prosecuting, said the defendant was engaged to clear a laundry of rats, and he contended that the defendant took no steps to keep dogs and cats away from the poisoned bread, which was placed on land at the rear of the laundry. Professor Clough, of the Royal Veterinary College, said the substance used contained barium carbonate, a deadly poison. He did not think, however, that the quantity placed on one piece of bread would kill a dog or cat. The Board of Agriculture recommended barium carbonate for destroying vermin. Mr. Fleming, without calling on the defence, dismissed the summons, with five guineas costs against the R.S.P.C.A.

Eighteen Months on a Chain.

At Kingston Police Court, on December 27th, Charles Underwood and Mrs. Elizabeth Underwood, his mother, of Acre Road, Kingston, were summoned for causing unnecessary suffering to a dog by omitting to give it proper care and attention.

Inspector Bowskin, of the R.S.P.C.A., said the dog was fastened up in a yard with a chain about 2½ft. long, weighing between 5lb. and 6lb. There was no kennel and no water provided, and the yard was only 3ft. wide. The animal was so ferocious that it was impossible to handle it. The male defendant told him that they had to keep the dog like that as it had knocked some children down. Mrs. Underwood admitted that the dog had been on the chain for eighteen months.

A veterinary surgeon said the dog was half mad with excitement at trying to escape.

The defendants said the dog had the run of the house in the evening and was sometimes taken out. They were each fined £2 10s.

The Heaviest Beast at Smithfield.

As an instance of the possibilities of combining milk and beef qualities in cattle, it is interesting to note that the heaviest beast at Smithfield (Felhampton Candidate, weighing 19 cwt. 1 qr. 18 lb.) was a British Friesian by a bull that has actually sired two 2,000-gallon cows and was out of a cow that averaged 1,365 gallons of milk for four years. His dam has bred some heavy yielders, and traces back to the bull Marden that appears in the pedigrees of several 2,000-gallon cows.

In a report on clean milk production, Dr. Barwise, Medical Officer for Derbyshire, suggests that cows should be milked in separate milking rooms, the floors of which are kept damp, as bacteria never become disseminated from wet or even damp surfaces. He expresses the belief that if clean bottled milk were on the market there would be no demand for dried milk except for medical reasons in special cases.

The remarkable progress made by the British Friesian Cattle Society, the youngest but one of the British cattle breed societies, is well demonstrated by the fact that, although only formed in 1909 with a membership of 20, it is now one of the only two cattle societies which has a four-figure membership. The present total is 2,023, or a multiplication of the original strength by 101. The Shorthorn Society has a membership of 4,490, but, of course, is of very much longer standing, having been inaugurated in 1875 with a membership of 939. The Dairy Shorthorn Society comes third in the list, with 973 members, having started with 62 in 1906. The Jersey Society, which was founded in 1878 with a membership of 143, has now reached 818.

The proposal has been revived for the amalgamation of the Cleveland Bay Horse Society and the Yorkshire Coach Horse Society, and a conference of members of the two societies is to be held. The Cleveland men are against any strain of thoroughbred blood: and it is understood that the Coach Horse Society is now prepared to drop the blood cross conditionally upon the Cleveland Society accepting for the Stud Book all coaching horses that have been or may be inspected, allowing all coaching mares to compete on an equal footing with the Cleveland Bay mares, and accepting for full registration the produce of inspected mares got by Cleveland Bay stallions.

The Royal Agricultural Society has started a movement aimed at getting the importing countries to recognise a zone system in this country, whereby an outbreak of foot-and-mouth disease, say, in the Eastern Counties, would not interrupt the export of animals from a port like Liverpool, if such animals have not come from the prohibited zone. The National Sheep Breeders' Association are supporting the movement.

Recent experiments have been made in the United States to determine the changes taking place in the respiratory and circulatory systems with the commonly used local anæsthetics. Submucous injections of epinephrin and cocaine were shown to bring on systemic reactions similar to those produced by intravenous injections of the drug. They are capable of causing enormous increases in arterial and venous pressures. The intracranial venous pressure was increased relatively twice as much as the arterial pressure. Cocaine and epinephrin, when injected submucously, act strongly synergistically.

Professor Gaiger, F.R.C.V.S., stated at a meeting at Ayr that the losses from animal diseases in Scotland were estimated at one million pounds a year. Research into animal diseases in this country had been so long neglected that it had become a national disgrace. So far the Animal Diseases Research Association had been devoting their energies mainly to the study of braxy, and had been able to discover a preventive, 4,000 inoculated sheep last year showing a 4 per cent. mortality as compared with a 10 per cent. mortality amongst sheep that were not inoculated. This year 13,000 hoggs had been vaccinated in different parts of Scotland, and they were awaiting the results.

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents.

Dog Shows.

Sir,—Major Dunkin's remarks, at a meeting of the South-Eastern Veterinary Association, upon the question of veterinary attendance at dog shows, deserve to be given much wider publicity. I absolutely agree with him that such attendance should not be honorary. As the Major observes, the vast majority of Canine Societies can well afford to pay for professional service, and should be made to do so. It seems to me a matter which might well be taken up by our N.V.M.A., representations being made to the Kennel Club.

It is only too true that recognition or thanks are rarely accorded to the veterinary surgeon for his hard day's work. As his position is honorary, the exhibitors must trust to his conscience and his willingness really to serve their interests. These would undoubtedly be best served if he were paid. I have not been idle in this matter, for I reviewed the whole position of the veterinary attendant at dog shows in my book, "Canine Distemper," and have lost no opportunity of impressing upon the minds of the dog-owning public, dog exhibitors, and canine clubs, the necessity for reform. It is useless for one man to refuse to attend, because there will be hosts of others ready to take his place. Our line of attack lies in another direction, viz., that of persuading the Kennel Club to issue an order to all its affiliated societies insisting upon the provision of veterinary fees. The Kennel Club might also include another point—that not only should the entrance examination of *every* dog be compulsory, but that admission of a dog to the hall should depend upon the possession by its owner of a pass obtained from the veterinary inspector. The latter on his part should make a careful and conscientious survey of each dog, and if the number of entries be beyond his power to cope with, qualified assistance should be provided.

Such a system would necessitate examination of the dogs outside the hall or in an annexe, which is as it should be, for if a dog, afterwards found to be suffering from distemper, is allowed inside before it is inspected and rejected, the mischief is done, and contagion already spread.—Yours faithfully, HAMILTON KIRK, M.R.C.V.S. Capt. R.A.V.C., T.A.

67 Wigmore Street, Portman Square, W.1.,
December 31st, 1922.

Army Veterinary Service.

LONDON GAZETTE—WAR OFFICE—REGULAR FORCES.

29th December.—Maj. A. F. Deacon retires on ret. pay (Dec. 30th), and is granted rank of Lt.-Col.

Diseases of Animals Acts, 1894 to 1914. Summary of Returns.

Period.	Rabies. Cases Confirmed. Dogs.	Rabies. Cases Confirmed. Other Animals.	Anthrax. Outbreaks confirmed.	Anthrax. Animals attacked.	Foot-and-Mouth Disease. Outbreaks confirmed.	Foot-and-Mouth Disease. Animals slaughtered as diseased or exposed to infection.	Glanders (including Farcy).* Outbreaks reported by the Local Authorities.	Glanders (including Farcy).* Animals attacked.	Parasitic Mange.* Outbreaks reported by the Local Authorities.	Parasitic Mange.* Animals attacked.	Sheep Scab. Outbreaks reported by the Local Authorities.	Swine Fever. Outbreaks confirmed.	Swine Fever. Swine slaughtered as diseased or exposed to infection
GT. BRITAIN.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Week ended 23rd Dec., 1922 ...	...	...	14	18	1	...	...	...	19	29	40	37	13
Corresponding Week in 1921	..	...	18	20	...	...	...	...	21	33	57	31	5
Corresponding Week in 1920	3	...	13	15	8	243	...	...	59	92	14	33	8
Corresponding Week in 1919	...	...	5	11	1	220	1	1	146	253	35	33	8
Total for 51 weeks, 1922 ...	1	...	504	580	1138	55499	4	4	996	1395	637	1359	518
Corresponding period in 1921	22	1	497	628	44	3085	11	45	1980	2993	637	1236	447
Corresponding period in 1920	40	...	449	536	88	11519	15	25	3514	5720	457	1796	706
Corresponding period in 1919	150	5	228	305	72	3364	24	60	4905	9610	415	2268	1023

NOTE. The figures for the current year are approximate only. *Excluding outbreaks in Army horses.

IRELAND.													
Week ended 23rd Dec., 1922...			...	...	...	...	...	...	Outbreaks 1		1	3	18
Corresponding Week in 1921 ...			...	...	...	...	...	...	2		17	5	13
Corresponding Week in 1920 ...			...	...	...	...	..	...	1		11	...	1
Corresponding Week in 1919 ...			...	...	...	...	...	...	2		17	...	...
Total for 51 weeks, 1922			1	1	...	...	...	...	76		210	231	1333
Corresponding period in 1921 ...			1	1	7	77	...	...	77		276	118	623
Corresponding period in 1920 ...			1	1	...	...	1	3	93		340	15	45
Corresponding period in 1919 ...			...	...	...	...	1	1	139		294	33	102

NOTE.—The figures for the current year are approximate only.